

Name: _____
A2CC: Simplifying Radicals

Date: _____

A square root of k is one of the two equal factors whose product is k .

Examples:

$$\sqrt{49}$$

$$\sqrt{25}$$

$$\sqrt{36}$$

Let's create a list of perfect squares.

When simplifying radicals it is very important to pay attention to the index of the radical.

A radical is in simplest form when:

1. The radicand (the quantity under the radical) has no factors that have a power greater than the index.
2. No fractions are underneath the radical.
3. No radicals are in the denominator.

ORAL EXERCISES

State the two square roots of each number.

1. 25

2. 4

3. 9

4. 64

5. 100

6. 36

State the principal square root.

7. 25

8. 49

9. $\frac{1}{4}$

10. $\frac{1}{81}$

11. $\frac{1}{100}$

12. $\frac{16}{25}$

Find the indicated square root.

13. $\sqrt{100}$

14. $-\sqrt{49}$

15. $-\sqrt{36}$

16. $\sqrt{121}$

17. $\sqrt{\frac{1}{16}}$

18. $-\sqrt{\frac{25}{36}}$

True or false?

19. 20 is a perfect square.

20. 100 is a perfect square.

21. $\sqrt{(-3)^2} = -3$

22. In $\sqrt{64}$ the radicand is 64.

23. $\sqrt{49}$ indicates only one square root of 49.

24. 0 has no square root.

WRITTEN EXERCISES

Each radicand is a perfect square. Find the indicated square root.

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|---|------------------------------|---------------------------------|------------------------------|--------------------------------|
| A | 1. $\sqrt{225}$ | 2. $\sqrt{625}$ | 3. $-\sqrt{196}$ | 4. $-\sqrt{484}$ |
| | 5. $-\sqrt{1225}$ | 6. $\sqrt{441}$ | 7. $\sqrt{144}$ | 8. $-\sqrt{400}$ |
| | 9. $-\sqrt{3025}$ | 10. $-\sqrt{2025}$ | 11. $\sqrt{4900}$ | 12. $\sqrt{2401}$ |
| | 13. $-\sqrt{729}$ | 14. $\sqrt{1024}$ | 15. $\sqrt{1296}$ | 16. $-\sqrt{3600}$ |
| | 17. $\sqrt{361}$ | 18. $-\sqrt{529}$ | 19. $-\sqrt{\frac{16}{81}}$ | 20. $\sqrt{\frac{64}{121}}$ |
| | 21. $\sqrt{\frac{256}{225}}$ | 22. $-\sqrt{\frac{81}{10,000}}$ | 23. $-\sqrt{\frac{49}{900}}$ | 24. $-\sqrt{\frac{169}{6400}}$ |
| B | 25. $\frac{2}{3}\sqrt{324}$ | 26. $\frac{1}{4}\sqrt{576}$ | 27. $-\sqrt{961}$ | 28. $\sqrt{841}$ |
| | 29. $-\sqrt{3721}$ | 30. $-\sqrt{2809}$ | 31. $\sqrt{7225}$ | 32. $-\sqrt{5476}$ |
| | 33. $\sqrt{0.01}$ | 34. $\sqrt{0.16}$ | 35. $-\sqrt{0.0049}$ | 36. $\sqrt{0.0225}$ |